DOCUMENT RESUME

ED 306 212 SP 031 120

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TITLE Obstacles and Possibilities in Building Interdependence: Two Worlds.
PUB DATE Mar 89
NOTE 9p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 27-31, 1989).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS High Schools; *Interaction Process Analysis; Pacing; *Research; *Researchers; Science Instruction; *Teacher Attitudes
IDENTIFIERS Wait Time

ABSTRACT

This study examined the interrelationships between research, policy, and practice. A year-long observation study was made of the lives and activities of a group of educational researchers collaborating on a nationally funded research investigation. The researchers were trying to implement wait time in high school biology and chemistry classes. Initially, the study focused on: (1) the development of research ideas; (2) the subjective meaning of the research as work to the individuals; (3) the group's interactions, leadership structure, decision making process, and interactions with their teacher-subjects; and (4) the interactions within the larger social context. The focus of the study was broadened to encompass the perspectives of the teacher-subjects towards wait time, and eventually towards becoming a teacher-researcher. An analysis of the accumulated data indicated that involving teachers as researchers allowed highly experienced teachers an opportunity to grow and learn in ways that they felt benefited their students. (JD)

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ED306212

Obstacles and Possibilities in Building Interdependence: Two Worlds

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Paper presented at the Annual Meeting of the
American Educational Research Association
San Francisco, March 1989

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Introduction

Becoming a "reflective practitioner" has been a growing theme in recent years in the area of teaching (Schon, 1983). Yet, rarely do we study our own research process. Recent authors have pointed out the need to do so (Smulyan, 1987), so that we may come to better understand the complex interrelationships between research, policy, and practice. The present study was a year long participant observation study of the lives and activities of a group of educational researchers collaborating on a nationally funded research investigation. The researchers were trying to implement wait time in high school biology and chemistry classes.

Initially, the study focused on: (1) the development of research ideas, (2) the subjective meaning of the research as work to the individuals, (3) the group's interactions, leadership structure, decision making process, and interactions with their teacher-subjects, and (4) the interactions within the larger social context. The focus of the study was broadened to encompass the perspectives of the teacher-subjects towards wait time, and eventually towards becoming a teacher-researcher.

Initial focus questions for the study included: How did these researchers view wait time? What role did it have in their vision of good teaching? How did they view the teachers they worked with, and how did this influence the research process? How did the teachers and their students view wait time? What constraints in the schools interacted with teachers' beliefs to determine whether they attempted to use wait time?

When this study began, the researchers were in year two of their wait time study. They were beginning to find that their intervention was not successful in helping teachers use longer wait times. It was decided that two graduate assistants and I would interview the teachers trained to use wait time, in an attempt to understand why teachers did not implement wait time. It was found that the teachers saw value in the concept of wait time, but due to contextual constraints failed to attempt to implement wait time in their classes. They were willing to use wait time in the six taped sessions "for the sake of the experiment," but felt using wait time on a daily basis would put them at odds with their perceived job description--covering the content. Thus the researchers were left with the dilemma of what to do with the third year funding allocated for teachers to become wait time staff developers in their schools. Eventually the researchers decided to invite the teachers to become collaborators in the research process, as teacher researchers. This represented a paradigm shift on the part of the researchers, from a view of teachers as recipients and implementers of their research findings, to a view of teachers as active collaborators in the research process (Beyerbach, 1988). The present work describes the perspectives of the researchers and the teachers on the Teachers as Researchers program which was developed.

Related Literature

Educational research is stereotypically presented as a linear process of problem formulation, literature review, design, data collection, analysis, and interpretation. Implications are derived, and sometimes implementation of research findings in the schools is attempted. This idealized version has been criticized as obscuring the complexities of educational research as a process of human interaction (Georges, 1980). Tikunoff and Ward (1983) state this top-down approach to implementing research findings is generally ineffective. Punch (1986), and Kirk and Miller (1986) likewise recommend documenting the history of a research project, as this can shed important light on data collected. Smulyan (1987) particularly stresses how the collaborative process between researchers and teachers affects the resulting project and outcomes. She found that the research "processes were much more complex than the implementation of a set of guidelines" (p.11).

Williams (1981) studied a group of qualitative researchers who conducted Case Studies in Science Education and found that "who people are--their motives and their personalities--helps determine how they define their purposes as researchers, how they react to constraints in the research setting, and how they gather and process information"

(p.96). Regarding policy, Williams found that "constraints were differentially communicated to the researchers, who received them and reacted to them in unique ways" (p. 104). Whereas his study was retrospective, involving interviews with and observations of the researchers several years later, my study involves participant observation and interviewing of an ongoing research group's collaboration.

Amabile (1983) argues that in studying creativity, we have tended to focus on individuals rather than on conditions conducive to creativity. She points out that policy constraints play an important role in influencing creative output. Flexible organizational structures that bend with innovation, a climate conducive to generating new ideas, an established process for developing new ideas into products, support from higher management, and a low level of supervision and evaluation enhance creativity. Decreasing outside stress, increasing external support, and active work on developing creative heuristics may enhance creativity. She points out that modern science requires collaboration. In a research study of 115 scientists, she found the four most important factors for realization of creative potential were "(1) high responsibility for initiating new activities, (2) high degree of power to hire research assistants, (3) no interference from administrative superior, and (4) high stability of performance" (p. 167). This framework serves as a backdrop for looking at the creative process in the lives of the researchers and teachers. The present study focuses on a line of research from both the researchers' and teachers' perspectives, and examines the policy constraints in the lives of each role group.

Method

Several hundred pages of field notes collected from October until June (on an average of ten hours per week), from observations of participants in the lab, and interacting with teachers, consultants, graduate students, and each other, form one part of the data. Several hundred pages of documents including papers and publications, prior staff meeting minutes, and master's theses coming out of the lab, are another data source. An "intellectual autobiography" documenting the literature I reviewed and its influence on the methodological decisions I made was recorded as recommended by Kirk and Miller (1986). Observer comments on field notes, and analytic memos on emerging themes were recorded. As a participant in the lab, I joined in staff meetings, and conducted interviews of teacher- subjects, to better understand the role and impact of this line of research on their practice. Interviews with the teachers focused on the meaning of wait time and its relation to their concept of effective teaching, problems with implementing wait time, and suggestions for the future of this line of research.

In the second phase of this study each of the four researchers, their secretary, the group's data analyst, and three graduate assistants who had worked in the lab were interviewed to determine the role of the research in their lives, and to test, verify, and refine emerging themes from phase one of the investigation. Data was coded according to the approach delineated by Bogdan and Biklen (1982) and a partial category system evolved.

During the summer of 1987, the researchers began the Teachers as Researchers program with 18 participating teachers. An open ended questionnaire was developed to gather information on the teachers' perspective towards their involvement in this program, and its relationship to their careers. I was also involved in the Teachers as Researchers meetings during the summer as a participant observer, and served as a consultant to one of the research groups. Emerging themes regarding the nature of the collaborative process, the roles played by the various participants and meanings attached to the research, and the contextual constraints in the lives of teachers and researchers are discussed.

Results

Institutional Support

The role of research within an institution serves as a backdrop for understanding what activities are possible and probable within a given context. It is probably safe to say that research is a higher priority in the college setting than in the public school setting, though we spoke to administrators in the public school who held a high priority for

research, and administrators in the college setting who felt research detracted from program effectiveness. Initially I began this study because I was curious about how such a large research project was located at a primarily teaching institution, with a common perception that if you do research "it comes out of your own hide."

In interviewing Tom, Associate Dean of Graduate Studies and codirector of the project, I once asked how such a large research project came to be at a primarily teaching institution. He replied that the present administration was very supportive of research, though this wasn't always the case. The president of the college had held a reception for the group after they had won an award. Much of Tom's travel money is contributed by the graduate office. Tom conveyed that he felt that this institution was the perfect location for creative research--having fewer constraints than at a larger university, yet being large enough to allow for drawing on expertise from various disciplines. Nathan, codirector of the project, also conveyed that the institution was the right size to be interdisciplinary. He also felt that having an interdisciplinary team facilitated group cohesion. He commented, "We have no professional jealousy, being from different departments. We aren't competing for the same monies for merit or anything else." In other contexts, institutional policies regarding merit might impose an unintended stress on collaborative relations.

The researchers felt then, some institutional support for their activities (though they felt they had won this over time), as well as collaborative support from one another. The teachers we worked with however, felt they had to legitimize their activities with their administrators. They did receive some monetary resources from their institutions, in that they received in-service credit for the three semester-hours of graduate credit they received from the college for their participation in the Teachers as Researchers Program. The phrase "nice but not necessary" sums up how the teachers thought their administrators viewed their involvement in the research.

<u>Collaborative cohesion vs. isolation</u>. Intensive observation of formal staff meetings and informal contacts between the researchers in and out of the lab yielded a picture of a highly collaborative and dedicated group. Staff meetings were almost unbelievably harmonious, each individual attempting to both contribute and solicit opinions of others. Divergent opinions were freely expressed and listened to. All of the primary researchers have had some background in interpersonal communication skills (two as psychologists and two as values clarification teachers) and implemented this to a high degree. I kept waiting for this facade of harmony to crack, and to some degree it did. Some interpersonal issues were kept beneath the surface, the group choosing to overlook them. The staff strove to decrease role differentiation and achieve integration of individuals of different status, from undergraduates to deans. This occurred to a higher degree than in many settings. Graduate students in particular, were actively involved in all phases of the research process. One researcher summed it up when she said, "Nobody just collates papers, we all collate papers." Nathan, in his interview, commented that he felt the group members were all alike in many ways. They were not very diverse, and that was a strength. They could author different sections of a paper, for example, without a break in style.

In contrast, the isolation of today's teachers has been well documented (Lortie, 1975). The teachers in the wait time study also expressed frustration at not having time in their lives to collaborate with colleagues. The greatest strength of the Classroom Interaction Research Laboratory's new Teachers as Researchers program, as reported by the teachers involved, was the opportunity to come together with their peers to share ideas. Mary, a teacher who was a graduate assistant in the laboratory for a year, compared staff meetings in the public schools--with preset agendas and little time, to the staff meetings in the laboratory--where people shared the personal things they had been doing and often deviated from what was planned. She said, "In the public schools you didn't have time to keep it going for two hours. In the lab there was sometimes set agendas for staff meetings, but it evolved as we went along. We had the luxury of being real flexible." Meetings with the teacher-researchers during the school year, in contrast, were often sandwiched into thirty-five minute

planning periods, where the teachers had difficulty disentangling from the concerns of the moment to focus on their research project.

Flexibility vs. rigidity. The researchers, in contrast to the teachers, had a great deal of flexibility in determining what they would do and when they would do it. Though they had laid out a ground plan in the initial NSF proposal, they had time and resources for adding to and deviating from that ground plan. One of the pervasive tensions in the group centered around whether to follow a straight and narrow path, or to pursue the multiple new fascinating directions that arose in the research process. Bob, the group's data analyst, said that this flexibility was the group's greatest strength yet their greatest weakness. He commented that the research is not theory based, "rather they are enamored with procedures." In his interview he commented that, "I feel I'm not responding to structure, I'm providing structure. And that gives me infinitely more power than a data analyst ought to have." On the other had, "It is fun to be with the group because they spend so much of their time saying, 'What if?', and they generate neat ideas. I think that I've grown in that environment in the way I think about things more than in any other research environment."

The group had many options regarding what direction the research would take, who would do what when, and how it would be best accomplished. A teacher's agenda is much more constrained by the public school context, where the direction, and the whos, whats, and whens, are mapped out by state and district policies. A state mandated curriculum is chunked into 36 to 48 minute class periods and taught to assigned groups of students. A number of the teachers had after school responsibilities, e.g. coaching or families, making long meetings an impossibility.

The research group was able to be flexibly responsive to the data, and to the teachers they worked with. When they were not able to train teachers to increase their wait times in the first part of the study, for example, they deviated from their original plan of having teachers become wait time trainers, and instead invited teachers to become teacher researchers on problems of their own choosing. Their perspective on teachers shifted, and new roles for the teachers and researchers were created. The researchers had great flexibility in hiring graduate assistants, in allocating funds for consultants, and in determining what they would do, when and how they would do it. The most pervasive policies were broad and overarching--e.g. the conference schedule, the college schedule, and the funding agency deadlines--and though these had ultimate impact, they did not determine the researchers day to day actions in the way the state curriculum and a 36 minute class period constrains a high school teacher's daily actions.

The teachers who were interviewed about their views on wait time universally reported that though they saw value in the concept of wait time, the reason they didn't attempt to sustain three second pauses after posing a question, was because they felt a tremendous pressure to get kids through the curriculum at a fast pace to prepare them for the New York State Regents Examinations. These teachers reported that if they spent even two class periods "off task" in discussion of content, they would not get through the mandated curriculum and their students would be penalized. These teachers were "driven by the regents" and perceived their job definition to be that of covering the content at a brisk pace. Teachers felt frustration at their lack of control over their own actions, and felt that they did not have nearly enough time to cover the content they were expected to.

Foresight vs. presentism. The researchers were ultimately responsive and responsible to a number of policy constraints including funding agency guidelines, conference schedule deadlines, and the college schedule. Meeting deadlines for paper and report submissions, and grant proposal submissions for future funding, required great foresight and long range planning. For example, proposals would be submitted in August, and papers written in January of the next year, for papers to be presented in April. Initial planning for funding after the current grant, began at least one and a half years prior to the end of the current grant. Speculative discussions of possible future directions of the line of research were frequent. Foresight was integral to the survival and growth of the laboratory.

In contrast, the teachers reported that the bulk of their time was spent solving immediate problems and concerns--grading today's papers and running dittos for tomorrow's lab. This presentism has been documented in the literature (Lortie, 1975), and was very salient in the lives of these teachers, who reported that all of their time was consumed with the daily demands of preparing to teach five classes. They pointed to the need for released time for teachers who were involved in research projects during the academic year. Though our grant funding provided for release time for one teacher-researcher team to interview some peers and principals for their study, they didn't use the days during the first year of the study because they didn't find the time to arrange the interviews.

Multiple acts to juggle vs. one prescribed role. The researchers' lives involved integrating multiple and sometimes conflicting roles. They had to learn to respond to constraints of a variety of institutions--funding agencies, professional organizations, and the college--that were not necessarily coordinated with one another. Certain times in the laboratory became extremely stress inducing, for example when a conference or grant submission deadline coincided with when final reports were due for department chairpersons and deans.

Whereas conflicts within the group were relatively rare, there were often conflicts between an individual's role inside vs. outside the laboratory. Two of the researchers were promoted during the course of the grant (one to associate dean, and one to department chair), and the added pressures of dealing with a new position with more responsibilities sometimes led individuals to be away from the laboratory more than they wanted to. Meeting college policy constraints and deadlines, eg. submission of annual reports, was sometimes salient in determining what went on in these researchers' lives. At other times getting out conference and grant proposals, or gearing up for multiple conference presentations, drove activities in the lab. Juggling multiple roles was a pervasive requirement of being a researcher. Staff also reported that they were trained to perform multiple roles in the research process--roles which were to a high degree self-determined in response to the "demands of the situation." Staff on the research team were selected to work together. In contrast, teachers were less likely to determine the role they would play, nor were they generally selected for their fit with a team.

Typically, teachers responded to pervasive but integrated policies of the school. Though there were federal, state, district, and school policies operating, these were more likely to be coordinated rather than conflicting (at least ideally), and were locally interpreted in a more uniform fashion. The most constraining policies teachers reported that influenced their actions were, (1) the New York State Regents Examination, which determined the content, scope and pacing of their curriculum, and (2) the scheduling constraint, typically involving too short a time period for the amount of content expected to be covered. Teachers felt their role was highly prescribed by these two constraints.

Researchers' View of Teachers

As a group, the researchers shared a common perspective on the teachers they worked with. It is probably safe to say that after listening to hundreds of hours of tapes of the teachers teaching, the researchers knew more about the teachers lives than the teachers knew about the researchers. A number of themes regarding problems in the teaching of high school science resurfaced in the researchers conversations throughout the year. Three of the most pervasive concerns were: (1) the outdated knowledge base of the teachers in the sample, (2) the isolation teachers felt from peers, and, (3) the teachers' primary perception of their role as disseminators of information at a fast pace, to prepare students to succeed on the New York State Regents Examinations.

The researchers' perceptions of teachers seemed to shift over the course of the study, from a view of teachers as subjects to be shaped by a humanistic-behavioristic form of supportive intervention, to a more autonomous conception of teacher as decision maker. They have gone from a highly quantitative, linear research design, to a more interactive, staff development approach involving teachers as researchers on their own practice. The

implications of this shift are that the research becomes more interactive, a process of "mutual adaptation" which acknowledges and builds on teachers' practical knowledge in translating research to the classroom.

Teachers' View of Researchers

All of the teachers we spoke to enjoyed working with the research team. Teachers commented that they liked to talk to the researchers, who actively listened to their concerns. Being the focus of a research investigation alone, made them feel important. Being asked to participate as collaborators in the process was a unique experience. Teachers felt moved that their expertise and concerns were sought out by the researchers. The teachers felt the research team was very encouraging and supportive. Al, one of the teachers who had spent a sabbatical in the lab, summed up the feeling most explicitly, saying that the reason he was involved in the project was because he liked the contact with the people involved. The teachers all said they would like to continue as teacher-researchers if they could pursue topics of their own choosing, and if they could find the time.

The eighteen teachers involved in the Teachers as Researchers program were asked to respond to a survey asking them to describe their role as a teacher-researcher, list benefits and problems associated with the role, describe what they saw as the future of the program, and indicate whether they were interested in continuing in the program. Teachers saw their role as applying learning theory in the classroom, using research to solve problems in practice, and acting as a liaison between the university and school. Benefits they described were improving their practice, contact with other teachers working on the same problems, and greater understanding of the role of research. One teacher commented he got "a feeling of accomplishment in that I, as a teacher, need to know that what I do in the classroom is important enough for a research project." The number one problem teachers cited was lack of time for communication and problem solving. Teachers saw the future of the program as contributing to stronger links between the school and university, improving their teaching, and contributing to their own professional growth.

Summary

In order to better understand the complex relationships between research, policy, and practice, this investigation sought to examine a line of research from the perspectives of the researchers and their teacher-subjects. The role of contextual constraints in facilitating and constraining researcher and teacher activities was discussed. During the course of the study the researchers seemed to undergo a paradigm shift--from viewing teachers as "driven by the Regents", their behavior being modifiable by positive reinforcement ("supportive intervention"), to a view of teachers as active decision makers and essential partners in a collaborative research investigation. The teachers seemed eager to take on this new role of discovering what it means to be a teacher researcher. However they also expressed a need for some time away from the pressing demands of day to day teaching, in order to successfully involve themselves in the research process.

The description that has been presented portrays the worlds of the researchers and the teachers as being at opposite ends of several continuums. The world of the researchers involved collaborative cohesion, flexible responsiveness, foresight, and the need to juggle multiple acts. Policies from various organizational levels had long term impact, without severely constraining daily activities. In contrast, the world of teachers involved relatively more isolation, rigidity, presentism and a prescribed role. Policies such as the Regents Examination and the schools daily schedules severely constrained the scope and range of daily activities. Without considering the implications of these differences in the worlds of teachers and researchers, our attempts at trying to collaborate in relating the worlds of policy, research, and practice are likely to be doomed to failure.

What are the implications of these differences for the continuation of this collaboration? If we are to accept the value of developing reflective practitioners as desirable, then we must legitimize and facilitate reflection on practice within the institution of public schools as well as the university. Research is one approach to such self-reflection. Involvement in professional

activities leading the the examination of one's professional practice must be seen as necessary rather than just nice. Data from teachers indicated that involving teachers as researchers allowed highly experienced teachers an opportunity to grow and learn through the process, in ways that they felt benefited their students. We need to examine the effects of such programs on the school and district context, and on student outcomes. As researchers, we need to continue to examine our concept of what research is, and how it relates to practice. This self reflection will continue to shape our practice.

We need to look towards common meeting grounds between the worlds of research and practice. Summers seem the most likely time to involve teachers in sustained interactions. The school year can realistically involve occasional meetings, and data collection. We can make an effort to help teachers to infuse data collection related to their questions into worthwhile course assignments and classroom activities, so that teachers do not have to choose between covering the content and collecting data. As research consultants, we can continue to offer design and statistical assistance, as well as moral support. Support in the form of released time and/or stipends is necessary for both the public school and university participants. In working towards legitimizing research as an important role for some teachers, it might be advisable to work closely with one or several schools, rather than teachers from a number of districts. This might lead to the restructuring of both contexts that is needed if the Teachers as Researchers program is to become an integral part of the lives of the teachers and researchers.

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